

REMARKS

This amendment is responsive to the Office Action mailed March 20, 2008. Applicant thanks Examiner Dwivedi for the analysis set forth in the Office Action, and for noting allowable subject matter in Claims 10, 13, 14, 15, 18-21, 32, 36, 37, 40, and 41. Applicant has considered the rejected claims and respectfully submits that the claims as amended herewith are patentable over the cited art. Reconsideration of the present application is respectfully requested.

Claim Rejections – 35 U.S.C. § 103(a)

The Examiner rejected Claims 1-3, 6-9, 11-12, 22-23, 25-31, 33-35, 39, 42, and 43 under 35 U.S.C. § 103(a) as being unpatentable over Foreman et al. (U.S. Patent No. 5,127,773) in view of Guest (U.S. Patent No. 3,837,214). For at least the reasons discussed below, applicant respectfully requests that the Examiner reconsider and withdraw these rejections.

As a general comment, one of the main features of the present application is the ability to push fluids through a pipeline. This is useful as it can be used to increase the speed of the fluid, and therefore the capacity of the pipeline. However, neither Foreman et al. nor Guest is concerned with using a pig to transport fluids, and are incapable of doing so. Foreman et al. is pushed by the fluids. "Pigs" propelled in accordance with the teachings of Foreman et al. can never exceed the speed of the fluid that is pushing it. Guest pushes itself through stationary fluids. There is a free flow of fluids around Guest. If pigs according to Guest were to be placed in a flowing pipeline, the pigs would function like a motor boat on a river. The motor boat is capable of moving with the river, but having the motor boat on the river does not make the river flow any faster.

Applicant has taken wording from the disclosure regarding sealing and inserted it into independent Claims 1, 25, and 43. These and other differences will be described in greater detail below.

Claims 1 and 25

Foreman et al. relates to a pneumatic transport system, where a carrier is placed in a tube and driven through the tube by pneumatic pressure created by a fan, which does not form part of the

carrier. Guest relates to a pipeline inspection tool that passes through a pipeline using a rotor propulsion system, where the pipeline is in a hydrostatic condition, or in other words, where the fluid in the pipeline is stationary.

Independent Claims 1 and 25 refer to propelling pipeline pigs through a pipeline at speeds in excess of that provided by a pressure system for the pipeline. The fluid is pushed by the pipeline pigs, and fluid is drawn by areas of low pressure created by the passage of the pipeline pigs.

In Foreman et al., the carrier is pushed pneumatically through the tube, and therefore cannot move faster than the air that pushes it. Foreman et al. also does not teach pushing fluid with the carrier, and drawing fluid after in a low pressure area. In fact, the opposite is true. The area behind the carrier is a high pressure area, which causes the carrier to move forward.

In Guest, the pipeline is pressurized in a hydrostatic state, such that there is no fluid flow (see Col. 3, lines 45–63). This is necessary to allow the self-propelled pig to stop and inspect the pipeline. Thus, there is no fluid speed created by a pressure system. Furthermore, the pig does not push fluid in front of it, and draw it behind in a low pressure area. As the test is a hydrostatic test, the fluid is in a closed system and cannot be "pushed" anywhere, as it has nowhere to go. Instead, fluid is drawn past the pig using the propeller, which pushes the pig *through* the fluid in the pipeline. The fluid remains in the same position in the pipeline. The propeller would also create a high pressure area behind the pig, and not a low pressure area that would draw fluid after the pig.

Foreman et al. and Guest do not teach moving pipeline pigs in a pipeline faster than the fluid at the pipeline pressure, and do not teach pushing and pulling fluid through the pipeline. The combination of Foreman et al. and Guest cannot result in the teachings of Claim 1. Applicant therefore submits that Claim 1 is not obvious.

As Claims 2-3, 6-9, 11-12, and 22-23 depend upon Claim 1 directly or indirectly, and Claims 26-31, 33-35, 39, 42, and 43 depend upon Claim 25 directly or indirectly, applicant submits that these claims are also not obvious. In addition, the arguments below apply.

Claim 2

Claim 2 refers to the speed of the pipeline pig being a multiple of the fluid speed provided by the pressure system to increase the capacity of the pipeline. Neither Foreman et al. nor Guest teaches this feature.

The Examiner alleged that the carrier 12 of Foreman et al., which the Examiner compared to the pipeline pig, is capable of being driven at speeds that are a multiple of the air speed. The carrier 12 cannot travel faster than its driver. As the air speed drives the carrier 12, applicant respectfully disagrees that it can travel faster than the speed of the air. If anything, the carrier 12 would slow the air speed, as it causes the blower to do extra work.

In Guest, the pipeline is in a hydrostatic test condition. There is no fluid movement, and thus there is no capacity to increase the fluid flow. Furthermore, as argued above, Guest does not push any fluid, but rather the propeller draws it past as it propels itself through the pipeline. Thus, even if there were fluid movement, Guest would not increase the fluid speed in the pipeline.

Claim 6 and 7

Claims 6 and 7 refer to an electromagnetic thrust system being used to provide propulsion, guidance, and suspension for the pipeline pig. Neither Foreman et al. nor Guest teaches this.

Foreman et al. is fluid driven, as recognized by the Examiner, while Guest is driven by a propeller. In the Office Action, the Examiner seems to suggest that either the electromagnetic control signal, or the motor, which may be an induction motor, is equivalent to the claimed electromagnetic thrust system. Applicant respectfully disagrees.

The electromagnetic control signal is used to start and stop the pig; however, the pig itself is driven and suspended by mechanical means. The electromagnetic control signal merely turns the drive on and off. Applicant respectfully submits that a control signal is not the same as a drive system.

With respect to the motor, the thrust is provided by the propeller and not the motor. The motor provides the rotational force, but the drive system is mechanical, as the drive relies upon the

rotation of the propeller, and moves because of the fluid displacement caused by the mechanical rotation. In contrast, an electromagnetic thrust system directly applies an electromagnetic force to the pipeline pig to cause it to move. An example of this is the way in which a magnet moves away from another magnet as it is pushed closer.

Claim 6 has been amended to specify that the electromagnetic system is on the pipeline and interacts with the pipeline pig.

Claims 8 and 9

Foreman et al. does not teach the use of magnets. Guest also does not teach the use of magnets.

The Examiner stated that magnets were incorporated into the pipeline pig of Guest; however, applicant was unable to find this. The Examiner referred to "detailed description, paragraph 12," but this did not appear to be correct, and a word search for "magnet" in the specification of Guest did not reveal the reference. Applicant found references to an electric motor and electromagnetic signals, but neither of them requires that a magnet be present. If this rejection is maintained, applicant requests that the Examiner provide the specific column and line number of the reference.

Claims 11 and 12

Claim 11 refers to coils on the pipeline, and Claim 12 refers to various types of coils. The coils are used to provide an electromagnetic thrust to the pipeline pig. Guest is propelled by a propeller and is not pushed by an electromagnetic thrust. Guest therefore does not teach coils in an electromagnetic thrust system on the pipeline. The Examiner stated that Guest teaches coils that are multi-layered. Applicant was unable to find this reference. If the objection is maintained, applicant requests that the Examiner provide the specific column and line number of the reference.

Claim 26

Claim 26 claims that the separation zone is connected to a pipeline pig return line which returns the pipeline pigs to the holding zone. Neither Foreman et al. nor Guest teaches a return line.

The Examiner identifies pipeline 14 in Foreman et al. as the return line; however, pipeline 14 cannot be both the pipeline and the return line, as a pipeline only allows flow in a single direction.

Claim 27

As discussed above with respect to Claim 2, the carrier 12 cannot travel faster than its driver. As the air speed drives the carrier, applicant respectfully disagrees that it can be propelled at speeds that are a multiple of the air speed.

Claims 28 and 29

As discussed above with respect to Claim 6, neither Foreman et al. nor Guest teaches an electromagnetic thrust system. Foreman et al. is driven by pneumatic pressure, and Guest is driven by a propeller. Neither the electromagnetic control signal nor the electric motor used by Guest is an electromagnetic thrust system.

Claims 30 and 31

As discussed above with respect to Claims 8 and 9, neither Foreman et al. nor Guest teaches the use of magnets. If this claim rejection is maintained, applicant requests that the Examiner provide the specific column and line number of the reference where magnets are described.

Claims 33-35

As discussed above with respect to Claims 11 and 12, neither Forman et al. nor Guest teaches the use of coils on the pipeline as part of a thrust system. Applicant also notes that Claim 13, which recites ferromagnetic materials, was allowed, while Claim 35, which also relates to ferromagnetic materials, was rejected. Applicant assumes that this was merely a typographical error and that Claim 35 was intended to be allowed as well. Applicant requests confirmation of this assumption.

Claim 43

Claim 43 refers to a pig return line, an electromagnetic thrust system including coils, and propelling the pipeline pigs at speed which are a multiple of a fluid speed provided by the pressure

system of the pipeline. These aspects have been discussed above with respect to Claims 25, 26, 28, and 33, and are not taught by Foreman et al. or Guest.

In addition, Claim 43 specifically refers to inducing a travelling magnetic field that interacts with the magnetic field in the pipeline pigs to propel the pipeline pigs. Foreman et al. is propelled by pneumatic pressure, and Guest is propelled by a rotating propeller. There is no suggestion in either of these references that a travelling magnetic field could be used to propel the pipeline pigs.

Based on the above reasoning, applicant respectfully submits that Claims 1-3, 6-9, 11-12, 22-23, 25-31, 33-35, 39, 42, and 43 are not obvious based on a combination of Foreman et al. and Guest, and that the application is in condition for allowance. Issuance of a notice of allowance is respectfully requested.

Respectfully submitted,

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